



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,111	07/22/2003	Hiroshi Ishihara	2271/69885	9399
7590	05/03/2007		EXAMINER	
Ivan S. Kavrukov, Esq. Cooper & Dunham LLP 1185 Avenue of the Americas New York, NY 10036			YANG, RYAN R	
			ART UNIT	PAPER NUMBER
			2628	
			MAIL DATE	DELIVERY MODE
			05/03/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/625,111	ISHIHARA, HIROSHI	
	Examiner Ryan R. Yang	Art Unit 2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 12 April 2007.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-3,8-12,17-21,26-30,35-39,44-48 and 53-55 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-3, 8-12, 17-21, 26-30, 35-39, 44-48 and 53-55 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>4/12/07</u> . | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/25/2007 has been entered.

2. This action is responsive to communications: Amendment, filed on 1/25/2007. This action is non-final.

3. 1-3, 8-12, 17-21, 26-30, 35-39, 44-48 and 53-55 are pending in this application. 1, 10, 19, 28, 37 and 46 are independent. In the Amendment, filed on 4/19/2006, 1, 10, 19, 28, 37 and 46 were amended.

4. This application claims foreign priority dated 7/23/2002.

5. The present title of the invention is "Apparatus and method for image processing capable of accelerating image overlay process" as filed originally.

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claims 1, 3, 10, 12, 19, 21, 28, 30, 37, 39, 46, 48 and 55 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yoshinori et al (JP 10-333852) in view of Hashimoto (US PGPub 2002/0060675 A1).

Claim 10 [and all subsequent, e.g. 10-54 having the words "means" in them] is a substantial duplicate of claim 1, the only difference being that the word 'means' is added one time. The means in question - overlay detecting means - is that specified by Yoshinori. Reference Yoshinori teaches that images are broken up into objects for rendering processes. Further, overlaid objects or text blocks clearly constitute 'run aggregate figures', which would be handled by Yoshinori as above. The "run aggregate figures*" shown in applicant's Figs. 6A-6C would be equivalent to lines of text that are encapsulated by bounding boxes and then processed together. As such, any means for detected overlap of rectangular features would *prima facie* be effective for analyzing stacks of rectangular figures. The "means" recited by applicant would correspond to the overlap detection method shown in Yoshinori Figures 1 and 12 or the like (comparable to applicant's Figs. 5A-5C, for example). Thusly, the overlay detecting [Further, for all that are dependent on claim 10 (e.g. 11-18) please note that the above discussion on 'means' applies to those as well, so that limitation will not be addressed, as those are all exact duplicates of those of claims 1-9.)

(Claim 19 is a duplicate of claim 1 with the word "method" substituted for apparatus. Claim 28 is a duplicate of claim 1 with the word "printing" substitute for "image processing." Claim 37 is a duplicate of claim 1 with the words "host PC" substituted for "image processing apparatus." Claim 46 is a duplicate of claim 1 with the word "forming" substituted for *processing*. These substitutions do NOT change the scope of the claims and so the same rejections that are valid on claim 1 and the dependent claims therein are equally valid, with no further comment, on these claims.)

8. As to claim 1, an image processing apparatus comprising:

-An overlay detector configured to perform an overlay detection to detect an overlay of the first and second original images which are rendered based on the first and second rendering data by the first and second rendering instructions, respectively; and (Yoshinori - Abstract clearly teaches that the system is configured to detect overlap between various objects that are in the intermediate format, where the data are clearly rendered because of the drawing instructions - as illustrated at the bottom of Figure 1 - are clearly overlaid in that order based on priority [0015-0016], Figure 2, step [S2], Drawing 3 with priority decision means 24 [0020, 0024], where clearly such objects are rendered based on the original data, which could be in a PDL (page description language [0021]), where each object is rendered based on separate commands from the PDL)

-A memory storing the first rendering data contained in the first graphic rendering instruction, (Hashimoto Figure 2, element 203 (memory) [0028-0029]) (Yoshinori, Figure 1 - element 11 must prima facie contain memory since it breaks the image into various objects and distributes them to the various processing elements 12a - 12n. It also contains drawing data storage means 13 that contains the output of the various units and holds the result)

wherein said first and second graphics rendering instructions are sequentially processed, and said first graphic rendering instruction is input immediately preceding said second graphic rendering instruction (Yoshinori clearly shows in Drawings 1 and 12 how various objects are overlaid on each other. Clearly, from the Abstract, Yoshinori is

Art Unit: 2628

directed to a means for detecting overlap between deferent graphical objects, and means taught by Yoshinori corresponds with that of the applicant) putting the data into an intermediate format for such determinations. As stated at the bottom of the Abstract, the system distributes intermediate data without overlap to the processing means based on priority order, such that portions of lower level objects that do not overlap are clearly not sent to the asynchronous processing means [0031], where clearly these constitute first and second output images, where the images are overlaid by the copying system to form a final, output image. **Further, Yoshinori is clearly directed to rendering instructions as input to a graphics processor - see [0001-0003]) (Hashimoto clearly shows sequential pages being fed into a system and an overlaid image being generated, as in Figures 2 and 3, where this clearly shows that such commands to render each page would be "following" each other, and since they would be fed to the printer in one pass, this would clearly constitute "immediately following".)**

-Wherein the overlay detector specifies a portion of the first original image to be overlaid by the second original image upon detecting an overlay of the first and second original images, modifies said first rendering dat to omit the specified portion and draws a third output image based on the modified first rendering data in which the specified portion of the first original image is deleted and stores the modified first rendering data and the second rendering data into the memory. (Yoshinori clearly divides images into portions, as shown in Figures 1 and 12, where the various elements are processed separately to determine overlap. Clearly, as stated above, the system creates the third

Art Unit: 2628

output image, which is stored in drawing data storage means 13. It only examines areas that have overlap specifically - the other areas that do not overlap are sent directly to the processing units 12a-12n. The portions of the first image that are common with the second image would be discarded, with the second data filling in those spots, since the data of the later images would have a higher priority and would otherwise overwrite that location anyway. Finally, as noted above, Yoshinori does not send the overlapped portions of the base image to the asynchronous rendering units anyway. Yoshinori clearly stores the output image in image storage means 13 as above) (Hashimoto clearly produces the output (note Figure 3, where the various page images are overlapped onto each other-objects a, b, and c to produce a final output image A).

Various portions that overlap are processed using OR processing (0029).

Now, it is further taught that portions that overlap between images can be modified to omit the specified portion (0035) and teaches that the removed portions are omitted [0034-0035]. However, the general concept of OR processing an image forms the union of the various image(s) being operated upon (see attached document (*point Operations: Logical OR/NOR," Fisher et al) explaining how OR processing of an image works, where it is used to form the union of multiple images, typically using bitwise operations - see the example of the floppy disk and the histogram on pages 3-4).

Therefore, it is well known that in an OR operation, portions that are different between the images come through to form the unions, although what happens to the common portions is not expressly stated.

However, it would make sense that the portions of the first image that are common with the second image would be discarded, with the second data filling in those spots, since the data of the later images would have a higher priority and would otherwise overwrite that location anyway, while is entirely consistent with the nature of the image processing operation employed).

Reference Yoshinori teaches most of the limitations of the instant application, but does not expressly teach the use of OR processing and certain other limitations, including that the source of the base images are in fad pages or similar. As stated above, Examiner believes that Yoshinori clearly teaches that the portion of the second image or subsequent objects in the page description language or the like that would be overlaid is considered when it overlaps another object. The object that is in the second image will receive priority simply because it would appear on top of the other object at that location anyway - see Yoshinori. However, the Hashimoto reference clearly teaches OR processing of the pixels that overlap. Clearly, the nature of OR processing is such that the images from the second image will be placed on top of those from the first image. That being said, Hashimoto never states anything about transparency of the images - e.g. based on the examples given, no provision is made for alpha blending or the like. Therefore, Hashimoto assumes and requires full opacity for each page layer as shown in Figure 3 and the like.

Further, Hashimoto clearly teaches that pages are processed as the base image source for generating the composite image. Again, Hashimoto is only being used for a

Art Unit: 2628

modification, and the references are at least directed to the same problem solving area, that of overlaying images for various purposes.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Yoshinori reference to utilize the OR processing to determine areas of overlap of the various portions that would be sent to the various asynchronous rendering units, where such processing would automatically delete the portion of the first image that was overlapped (note how Hashimoto fairly suggests deleting unnecessary portions of the base image). Also, note the definition of OR processing and (00291. Motivation for such a modification would come from the fact that such an operation is very fast and efficient [0003-0004]. Additionally, the OR processing allows for accurate reproduction of overlapped areas [0032-0033], and is industry standard processing. Since Yoshinori is silent on how this determination is made (other than priority, which is not necessarily present), it would have been obvious to use this method to form the final, output image that contained the overlapping text.

Additionally, it is well known in the art that deleting the overlapping portion of one of the overlapping image would save memory.

Clearly, this concept is well known in the art (see for example Akasawa et al (US 6,867,801). Akasawa teaches a digital camera which is used to generate panoramic images, e.g. images that overlap with each other. For example, in Figs. 9A-9D the overlap is sensed and the overlapping portions of the first and second images are identified. Further, in Figs. 20A-20D the full process is shown wherein the overlapping portions identified in Figs. 9A-9D for example are deleted and the final image is created

with the erased portions of the second and subsequent images that overlap (see for example 14:10-15:25).

US 6,148,118 (23:5-23:23) to Murakami et al teaches that the overlapping portion of various images are deleted. Murakami teaches a method for combining images to allow large documents to be copied, e.g. a document can be scanned in multiple portions and the images combined. Re overlapping areas are deleted (23:5-23:23), with emphasis on the process in 6:20-7:2. Namely, the images are stored in image memory A and B and then combined to be output to memory C. Specifically, see Fig. 4, where the overall process flows is shown. The key to this particular combination is found in 6:63-37, where image memory C may store data **equal to or smaller than A3**. Clearly, this means that data is removed during the joining process, and as stated in 23:5-23:23 such overlap can simply be deleted to save memory, as is suggested in 6:20-7:2.

9. As to claims 3, 12, 21, 30, 39, and 48, clearly Yoshinori teaches that the data from a PDL is converted into an intermediate format for processing as discussed above [0020-0021, 0003, and the like]. Clearly, this constitutes conversion into an intermediate format, which clearly these references do perform. Additionally, Hashimoto very clearly teaches that pages are processed together.

10. As per claim 55, Yoshinori and Hashimoto demonstrated all the elements as disclosed in the rejected claim 1, and further discloses said portion of the first original image overlaid by the second original image is not rendered (since the portion of the first original image to be overlaid is deleted in claim 1).

Art Unit: 2628

11. Claims 8-9, 17-18, 26-27, 35-36, 44-45, and 53-54 are rejected as unpatentable under 35 U.S.C. 103(a) over Yoshinori in view of Hashimoto as applied to claim 4 above, and further in view of Venable.

12. As to claims 8, 17, 26, 35, 44, and 53, the image processing apparatus as defined in claim 1, wherein the second output image is configured to be overwritten on the third output image.

Hashimoto clearly teaches that OR processing is used, where when the case of three images is considered, clearly the second output image would be overwritten onto the final output image that would be shown to the user. Additionally, Yoshinori teaches that objects are composed in the final storage means, where a component of the output image could be written over based on priority or other factors. Venable teaches in 0015-0018 very clearly that the first two images are input and the third image is output with the 'specified region' removed. Further, it is well known in the art to store the results of image processing in some kind of memory before they are output. Reference Venable teaches in 0063 that images are stored in a frame buffer, so it would be *prima facie* obvious to store the third image there. It would be obvious to one of ordinary skill in the art to allow the second image to be overwritten (e.g. if as in the case of Fig. 3, the second image were of background against which an object was placed and it was desired to only capture the object and then combine it with the first image). Motivation is additionally incorporated from the rejection to claim 6.

13. As to claims 9, 18, 27, 36, 45, and 54, the image processing apparatus as claimed in claim 8, wherein the first and second output image are configured to be

drawn with a rendering process based on at least one of a mono chrome, an RGB video color rendering, and a CMYK paint color rendering.

Venable teaches the use of RGB and similar color spaces (0065). Other color spaces (e.g. CMY, YUV, CMYK) are well known in the art and would be obvious to use. Color printers are known in the art - e.g. it is well known, a fundamental principle in the art - to use CMYK color space. The use of a monochrome color space would be *prima facie* obvious that a copying system (0060, Figs. 1 and 2) is being used, and it is common sense that hard copy (0058) would be black and white (e.g. a book).

Motivation is additionally incorporated from the rejection to claim 6.

14. Claims 2, 11, 20, 29, 38, and 47 are rejected under 35 U.S.C. 103(a) as unpatentable over Yoshinori in view of Hashimoto as applied to claim 1 [and 10, 19, 28, 37, and 46] above, and further in view of McIntosh (McIntosh, John M. "POSTSCRIPT: A Page Description Language.")

15. As to claims 2, 11, 20, 29, 38, and 47, the image processing apparatus as defined in claim 1, wherein said graphic rendering instructions are configured to be a page description language and each of said graphic rendering instructions are configured to include a fundamental graphic description instruction which handles characters, graphics and images and a rendering attribute instruction handling colors, clipping area designations and rendering arithmetic methods.

Yoshinori teaches the use of a page description language (PDL) in [0021], Adobe in [0003], but does not teach specifics of the instructions. Reference McIntosh teaches that by definition, a PDL is a programming language that defines images and text in a

high-level format; an example of a PDL is Adobe® Postscript™, which includes its own instructions to handle colors, characters, graphics images, etc (pg. 3). Therefore, the recitation of a PDL limitation by applicant *prima facie* includes "fundamental graphic description intrusions" that handle all the various aspects of rendering that are required and includes color (pg. 1). Basically, a PDL includes all the information that applicant recites, and it would be obvious to one of ordinary skill in the art to have a split instruction - e.g. one that handles rendering and one that does graphical description. Yoshinori clearly evaluates objects from a PDL and determines how they should be dipped, since it is known that they can overlay each other. Thusly, Yoshinori performs clipping, and the specification of the Postscript language includes such limitations anyway, which is well known in the art. It would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the PDL and rendering of Yoshinori and Hashimoto with the PDL of McIntosh, since McIntosh teaches the details of the PDL that Yoshinori uses and clearly states can be the input (and likely output) of the processing.

Response to Arguments

16. Applicant's arguments filed 1/25/2007 have been fully considered but they are not persuasive.

Applicant amends the claim limitation from "deletes a specified portion" to "modifies said first rendering data to omit the specified portion". Examiner considers the scope of the claim limitation has not changed, therefore, the existing rejections still apply.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Inquiries

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan R. Yang whose telephone number is (571) 272-7666. The examiner can normally be reached on M-F 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Razavi can be reached on (571) 272-7664. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Ryan Yang
Primary Examiner
April 29, 2007